

CLAIMS

(1) A data processing system for distributing data sets received sequentially to a plurality of pipelines for processing, said system comprising:

a data buffer having a plurality of storage positions for temporarily storing said data sets by defining target pipelines to which said data sets are to be distributed, respectively;

a next pointer having a plurality of storage positions for temporarily storing second information relating to a storage position for a subsequent data set in said data buffer; and

a read pointer for temporarily storing first information relating to a storage position for a preceding data set in said data buffer and for storing said second information after said preceding data set is read out from said data buffer.

(2) The data processing system according to Claim 1, wherein said data buffer and said next pointer are shared by said plurality of pipelines.

(3) The data processing system according to Claim 1, wherein said read pointer is provided for each pipeline and has a single storage position.

(4) The data processing system according to Claim 1, wherein said read pointer enables said first information to be updated to said second information after said preceding data set is read out from said data buffer.

(5) A data processing system comprising:

a first buffer having N storage positions for storing data sets; and

a second buffer having M storage positions each of which is associated with a storage position in said first buffer;

wherein, when a preceding data set is stored in the n-th storage position of said first buffer and a subsequent data set is stored in the (n+a)-th storage position of said first buffer

(a: an integer), the value $(n+a)$ is stored in the n -th storage position of said second buffer as storage position information for said subsequent data set.

(6) The data processing system according to Claim 5, wherein, when a data set stored in said n -th storage position of said first buffer is read, said storage position information stored in said n -th storage position of said second buffer is also read.

(7) The data processing system according to Claim 5, wherein the number N of storage positions of said first buffer is equal to the number M of storage positions of said second buffer.

(8) The data processing system according to Claim 6, further comprising a read pointer for storing said storage position information read out from said second buffer, wherein a predetermined data set is read out from a storage position in said first buffer specified by the storage position information stored in said read pointer.

(9) A data processing system for distributing data sets received sequentially to a plurality of pipelines for processing, said system comprising:

a data buffer having a plurality of storage positions for temporarily storing said data sets by defining target pipelines to which said data sets are to be distributed, respectively; and

a pointer having a plurality of storage positions corresponding to the storage positions of said data buffer, respectively;

wherein, when a data set is stored in said data buffer, information relating to an empty storage position is stored in a storage position of said pointer corresponding to a storage position in which said data set is to be stored.

(10) The data processing system according to Claim 9, wherein a write pointer is provided for each pipeline to temporarily

store information relating to the storage position in said data buffer in which said data set is stored, and said empty storage position information is also stored in said write pointer.

(11) A multiprocessor system for distributing data sets unreceived sequentially to a plurality of pipelines for processing, said system comprising:

a dispatching processor for distributing the received data sets to the pipelines;

a plurality of parallel processors, each of which is disposed at each of the pipelines and enabled to process a data set distributed thereto;

a data buffer having a plurality of storage positions for temporarily storing one or more data sets output sequentially from said dispatching processor;

a next pointer for storing information on a first storage position for a first data set in said data buffer and information on a second storage position for a second data set in said data buffer, said second data set being to be processed by a parallel processor after said parallel processor processes said first data set;

a read pointer disposed before a parallel processor for each pipeline for sequentially storing said first storage position information and said second storage position information;

a priority encoder for determining storage positions for said first and second data sets in said data buffer; and

a plurality of multiplexers each of which is disposed between a parallel processor and said read pointer for each pipeline to read said first and second data sets sequentially from their storage positions in said data buffer according to said first and second storage position information stored in said read pointer, and pass said first and second data sets to the parallel processor.

(12) The multiprocessor system according to Claim 11, wherein said next pointer has the same number of storage positions as that of said data buffer, and the storage positions of said

next pointer are respectively associated with the storage positions of said data buffer.

(13) The multiprocessor system according to Claim 11, further comprising a write pointer for temporarily storing information on a storage position in said data buffer in which a data set to be distributed to a parallel processor is stored.

(14) The multiprocessor system according to Claim 11, further comprising a merging processor for merging the data sets processed by said parallel processors.